

Designing Successful Collaboration using Social Network Analysis

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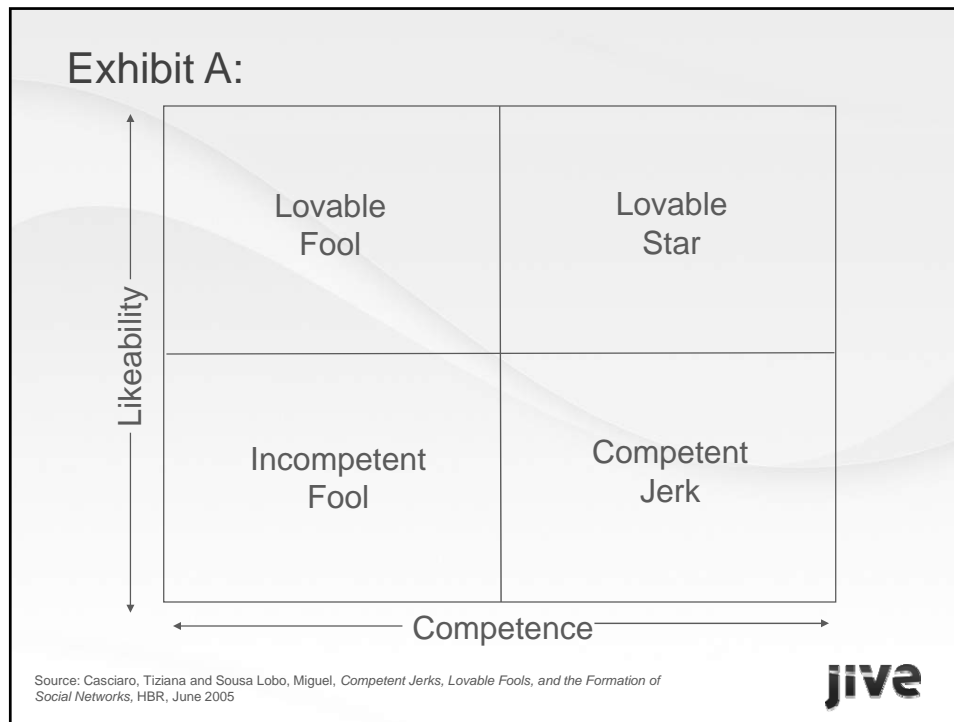
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In understanding how people work together,
we have often relied on first hand accounts

- Interviews
- Focus Groups
- Surveys
- ... basically input directly from the subjects

.... but it is reality?

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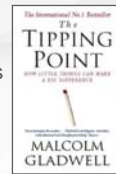
What are two human issues that must be enabled with enterprise social software?

- Competency based trust
- Benevolence based trust

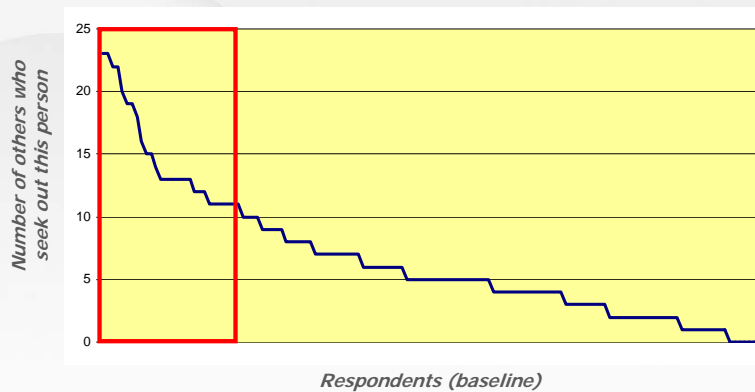
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Exhibit B: Who has influence?

- Communication program that engages senior leaders to endorse and encourage participation in the POC
 - Communications such as an email campaign, discussions at staff meetings, intranet, etc.
- A viral program that captures the attention of the organization's Mavens, Connectors and Salespeople (based on Gladwell's Tipping Point terminology)
 - **Connectors** – networking at many levels and in many spheres. The “hubs” of a social network that connect different groups
 - **Mavens** – know about many things – or know where to find out – subject matter experts
 - **Salespeople** – the persuaders - evangelists



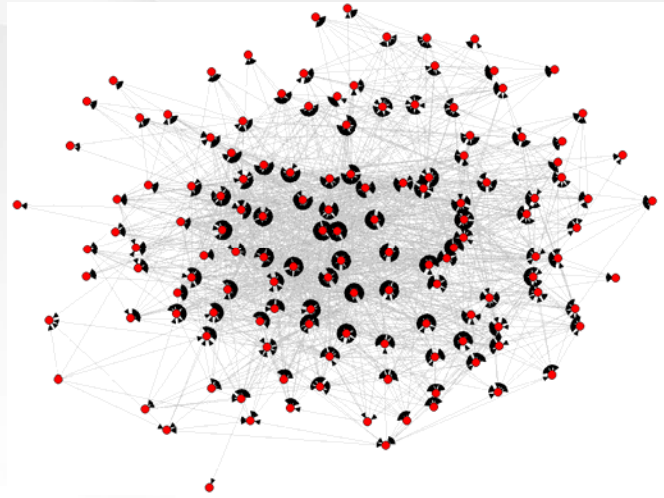
Using the power law curve, we wanted to identify those who were influential and had a large number of connections



This is a classic “power law distribution” that is typical of a network (and most phenomena in social software). Not all “nodes” are the same. Networks are made up of “hubs” that support the network. This is an example of all the individuals who are known for proactively sharing information. The people in the red box are the “hubs” we needed to engage.

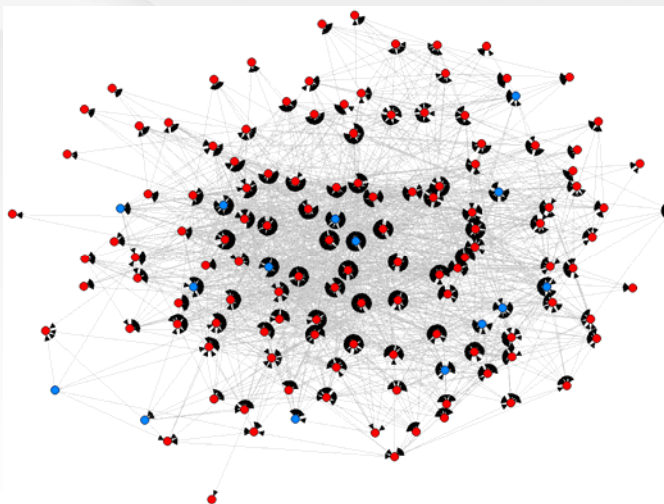


This is the network which had an average “In Degree Centrality” of 6.2 on the Salesperson network



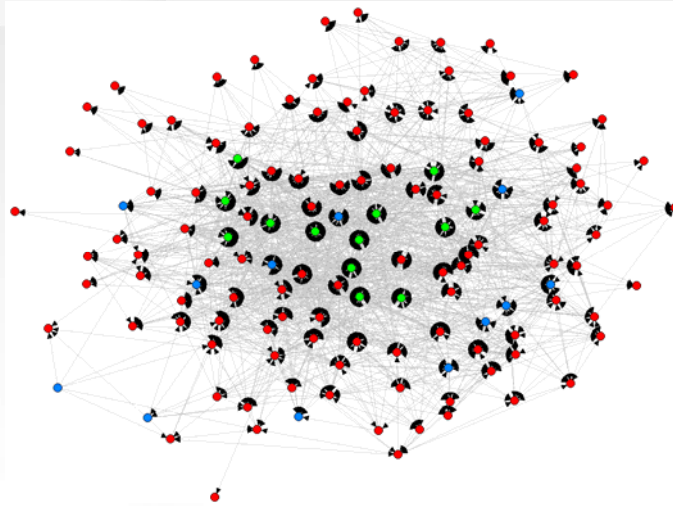
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My client selected a number of advocates (indicated in blue). The advocates had an average in degree of 7.5, which is better than the population’s average



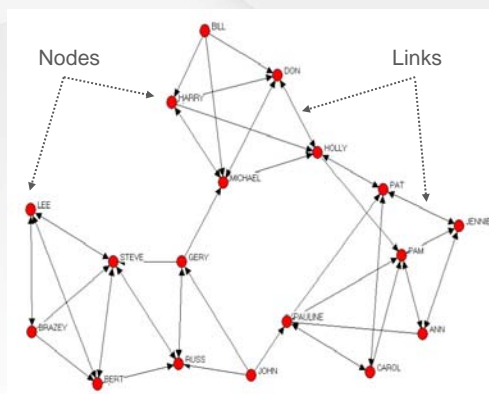
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However, the SNA revealed that we should also engage the individuals highlighted in green. They had an average in degree of 16.5, over twice as influential as the selected advocates



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What is a Social Network?



Who talks to whom

Source: Kate Ehrlich, IBM Research

A **group**

- The population being studied

A set of **nodes**

- The actors

Attributes

- Nodes have attributes, e.g. tenure, geographical location, business unit

A set of **links** that connect the nodes

- Links can have strength -- strong and weak
- Links can have directionality

Relationships

- E.g. Who talks to whom
- Can be instrumental (e.g. communication) or affective (e.g. trusts)

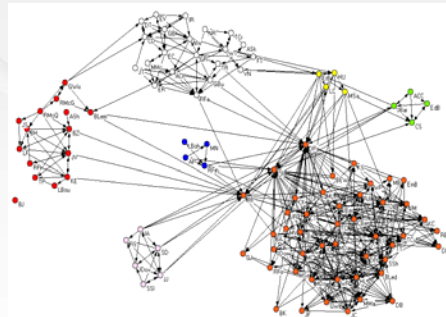
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Designing for Collaboration

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In a few cases, we've used Social Network Analysis – when it supports both the advocate and measurement strategies

- Conducted an SNA to help identify key individuals to support the development of content and the “socialization” of social software
- Objective:
 - Identify SMEs – (Mavens)
 - Identify Brokers (Connectors)
 - Identify Advocates (Salespeople)
 - Measure the network (density, distance, centrality)
 - Identify opportunities
- Process
 - Implement Survey
 - Analyze Results
 - Develop an Action Plan



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This measurement framework was a combination of quantitative and qualitative measures to assess business value



*Are people using the environment?
Is it sustained over time?*

Do people perceive they are getting value from their involvement?

*Are new connections being formed?
How can social software affect Key Performance Indicators?*

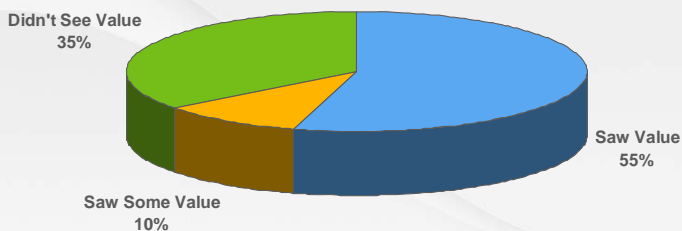
Short Term Objectives

Medium Term Objectives

Long Term Objectives



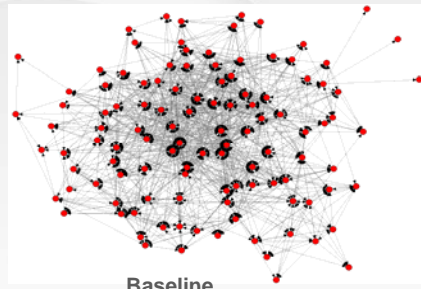
User survey data wasn't very compelling



- Positive correlation (.35) between frequency of reported use versus perceived business value
- Stronger correlation (.44) between evaluation of POC (e.g. the respondent felt they had sufficient opportunity to evaluate the POC) and perceived business value
- No correlation between generation of respondent and perceived business value (-.04)

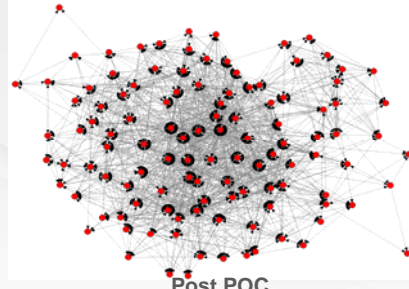


Measurably increase awareness of the network – at the community level ...



Baseline

Density = 10%	Shortest Path	Freq.	Proportion
Distance = 2.28	1	1356	15%
Distance-Based Cohesion (Compactness) = 0.349	2	4190	47%
Correlation to Collaboration = 0.95	3	2754	31%
	4	475	5%
	5	44	> .05%



Post POC

Density = 13%	Shortest Path	Freq.	Proportion
Distance = 2.24	1	1700	15%
Distance-Based Cohesion (Compactness) = 0.447	2	5718	51%
	3	3172	28%
	4	547	5%
	5	33	> .05%

... at the individual level ...



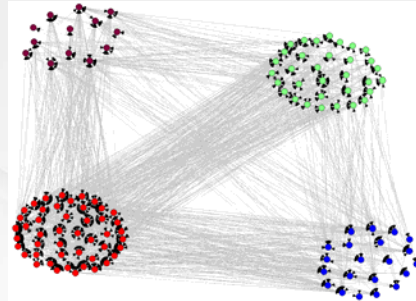
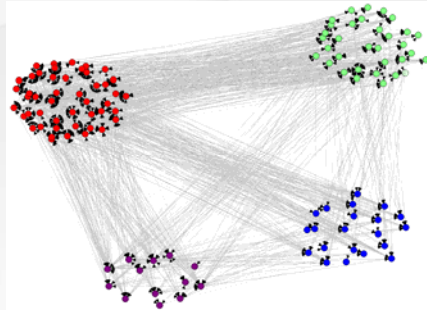
“Obtained a greater sense of the types of projects and activities on the go throughout XX businesses. Was able to share information relative to recruitment and obtain feedback on particular topics of interest.”

In degree	23
Out degree	23
Eigenvector Ranking	16
Betweenness Ranking	7

In degree	31
Out degree	35
Eigenvector Ranking	15
Betweenness Ranking	3

Person 5 – used almost everyday, 25-34, positive perception, contributor

... as well as within generations and between generations



Baseline

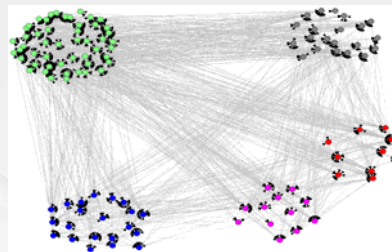
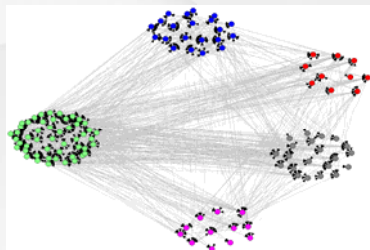
	Pop	N/A	25-34	35-46	47-59
■ N/A	21	13%	9%	11%	10%
■ 25-34	33	11%	9%	11%	10%
■ 35-46	47	11%	9%	10%	9%
■ 47-59	13	13%	12%	14%	14%

Results

	N/A	25-34	35-46	47-59
14%	11%	13%	10%	
14%	13%	14%	14%	
15%	12%	13%	13%	
14%	12%	14%	14%	



.... within and between job accountabilities ...



Baseline

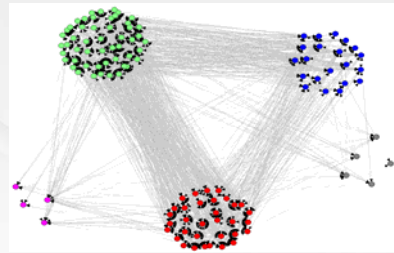
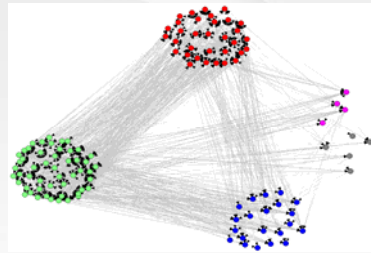
	Pop	A	B	C	D	E
■ A	10	9%	11%	8%	11%	8%
■ B	21	11%	9%	9%	11%	10%
■ C	50	11%	12%	11%	12%	12%
■ D	21	15%	9%	10%	13%	11%
■ E	12	13%	8%	9%	9%	8%

Results

	A	B	C	D	E
12%	13%	10%	15%	13%	
11%	11%	10%	12%	11%	
15%	16%	14%	16%	17%	
16%	11%	11%	14%	12%	
14%	10%	12%	13%	8%	



... as well as within and between primary work locations.



■	Pop
■	33
■	51
■	5
■	4
■	E
	21

	A	B	C	D	E
A	8%	9%	8%	12%	8%
B	7%	13%	13%	11%	8%
C	10%	13%	13%	12%	9%
D	10%	7%	5%	5%	0%
E	13%	17%	20%	15%	25%

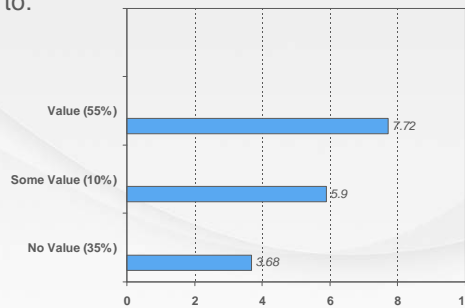
	A	B	C	D	E
A	10%	12%	11%	16%	9%
B	9%	14%	14%	11%	11%
C	13%	17%	16%	15%	13%
D	10%	9%	5%	5%	0%
E	16%	19%	23%	20%	33%

Improvements
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... and delivered measurable business value.

Evaluation criteria were the ability to:

- Learn about the knowledge and interests of the XX Community
- Better coordinate work
- Connect with others with a common interest
- Find / share information
- Keep informed
- Find and access expertise
- Reveal new or different perspectives about an issue



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Conclusion

- Social Network Analysis provided the “organizational xray” necessary to stage and prove this collaborative system
- Perception of the social network and how people choose collaborative partners is not obvious
- SNA is a valuable tool to better understanding the situation when relationships are key to acceptance

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